

WHAT IS CLAIMED IS:

1. A network administration system comprising a network administrator which performs re-arrangement of network resources,

5 said network administrator including functions of:

(a) estimating a probability at which failures would occur in a cell in which network resources have been re-arranged; and

(b) repeating re-arrangement of network resources for minimizing said probability.

10 2. The network administration system as set forth in claim 1, wherein said network administrator further includes a function of calculating a probability at which failures would occur, based on data about past cells.

15 3. The network administration system as set forth in claim 1, wherein said network administrator further includes a function of indicating a probability at which failures would occur in each of cells in which network resources have been re-arranged.

20 4. The network administration system as set forth in claim 1, further comprising:

a first database storing MTBF data indicative of mean time between failures (MTBF) of components constituting a mobile communication system;

25 a second database storing failure data about past failures of components constituting a cell; and

a third database storing cell site data indicative of past traffic.

5. The network administration system as set forth in claim 4, further comprising a cell site which informs said network administrator of said cell site

data in each of cells.

6. The network administration system as set forth in claim 5, wherein said network administrator further includes a function of calculating a probability at which failures would occur, based on said MTBF data, said failure data, and said cell site data.

7. The network administration system as set forth in claim 6, wherein said network administrator further includes a function of constructing and retrieving said first to third databases.

8. The network administration system as set forth in claim 7, wherein said network administrator further includes a function of checking said MTBF data, said failure data and said cell site data with one another, and calculating a probability at which failures would occur in the re-arranged mobile communication network, in each of cells.

9. A method of re-arranging network resources in a network administration system, comprising the steps of:

(a) estimating a probability at which failures would occur in a cell in which network resources have been re-arranged; and

(b) repeating re-arrangement of network resources for minimizing said probability.

10. The method as set forth in claim 9, further including the step of calculating a probability at which failures would occur, based on data about past cells.

11. The method as set forth in claim 9, further including the step of

indicating a probability at which failures would occur in each of cells in which network resources have been re-arranged.

12. The method as set forth in claim 9, further comprising a database storage step including the steps of:

storing MTBF data indicative of mean time between failures (MTBF) of components constituting said network administration system;

storing failure data about past failures of components constituting a cell, in a second database; and

storing cell site data indicative of past traffic in a third database.

13. The method as set forth in claim 12, further comprising the step of transmitting said cell cite data in each of cells to a network administrator from a cell site.

14. The method as set forth in claim 13, further comprising the step of calculating a probability at which failures would occur, based on said MTBF data, said failure data, and said cell site data.

15. The method as set forth in claim 14, further comprising the step of constructing and retrieving said first to third databases.

16. The method as set forth in claim 15, further comprising the steps of checking said MTBF data, said failure data and said cell site data with one another, and calculating a probability at which failures would occur in the re-arranged mobile communication network.

17. The method as set forth in claim 12, wherein said database storage step further includes the steps of:

storing data indicative of mean time between failures of components constituting said mobile communication network, in said first database;

accumulating said failure data in said second database for each of cells to thereby automatically register data past failures which occurred in each of cells,

5 in said second database; and

accumulating said cell site data in said third database for each of cells to thereby automatically register said cell site data in each of cells in said third database.

10 18. The method as set forth in claim 17, further comprising a database processing step in which data about past cell for each of cells is administrated.

15 19. The method as set forth in claim 18, further comprising the steps of retrieving data about past cells, and collecting data about past cells which data is similar to data about present cells.

20 20. The method as set forth in claim 19, further comprising the steps of re-arranging network resources of a cell to which traffic is estimated to concentrate, and producing data about a target cell.

25 21. The method as set forth in claim 20, further comprising the step of extracting data indicative of a frequency at which failures occurred, out of said data about past cells and said data about a target cell, and calculating a failure probability in accordance with the equation  $X/Y$  wherein X indicates data about past cells in which failures occurred, and Y indicates data about all past cells.

22. The method as set forth in claim 21, further comprising the steps of displaying said failure probability as a failure probability of a cell in which network resources have been re-arranged, and informing a network administrator

of said failure probability.

23. The method as set forth in claim 22, further comprising the steps of:

judging whether re-arrangement of network resources in a present cell,

5 based on said failure probability; and

repeating re-arrangement of said network resources, if said re-arrangement  
of network resources in a present cell is not appropriate.

24. A recording medium readable by a computer, storing a program therein  
10 for causing a computer to act as a network administrator performing re-  
arrangement of network resources in a network administration system, said  
network administrator including functions of:

(a) estimating a probability at which failures would occur in a cell in which  
network resources have been re-arranged; and

15 (b) repeating re-arrangement of network resources for minimizing said  
probability.

25. The recording medium as set forth in claim 24, wherein said network  
administrator further includes a function of calculating a probability at which  
20 failures would occur, based on data about past cells.

26. The recording medium as set forth in claim 24, wherein said network  
administrator further includes a function of indicating a probability at which  
failures would occur in each of cells in which network resources have been re-  
25 arranged.

27. The recording medium as set forth in claim 24, wherein said network  
administration system further includes:

a first database storing MTBF data indicative of mean time between failures

(MTBF) of components constituting a mobile communication system;

a second database storing failure data about past failures of components constituting a cell; and

a third database storing cell site data indicative of past traffic.

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28. The recording medium as set forth in claim 27, wherein said network administration system further includes a cell site which informs said network administrator of said cell site data in each of cells.

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29. The recording medium as set forth in claim 28, wherein said network administrator further includes a function of calculating a probability at which failures would occur, based on said MTBF data, said failure data, and said cell site data.

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30. The recording medium as set forth in claim 29, wherein said network administrator further includes a function of constructing and retrieving said first to third databases.

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31. The recording medium as set forth in claim 30, wherein said network administrator further includes a function of checking said MTBF data, said failure data and said cell site data with one another, and calculating a probability at which failures would occur in the re-arranged mobile communication network, in each of cells.